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Preface:

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KEYNOTE SPEAKER



Dr. Yoshiko Yamaguchi

**Home Care Nursing, Faculty of Nursing, Kwassui Women's
University, Japan**



★ RESEARCH ★



Paul Olusegun Bankole
ERCICSTR1804051

**Biodegradation and Decolorization of Eriochrome Black T Dye by
Peyronellaea Prosopidis**

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Agriculture, Abeokuta, Ogun State, Nigeria, Abeokuta, Nigeria

ABSTRACT

Isolation, identification, and characterization of newly isolated fungus, *Peyronellaea prosopidis* capable of decolorizing Eriochrome black T (EBT) dye were investigated in this study. Molecular and phylogenetic analyses of 23S rRNA sequence data revealed that the fungus belonged to the genus, *Peyronellaea*. The optimization of physicochemical parameters such as pH of the solution (2-8), initial dye concentration (50-100 mg L⁻¹), adsorbent mass (0.1-2 g), and temperature (10-50 °C) was studied to scale up the conditions of dye removal. Furthermore, complete decolorization (97 %) of EBT dye (50 mg L⁻¹) was achieved at pH 6, temperature 35 °C and 2.0 g cell biomass within 5 days. UV-Vis spectrophotometric analysis revealed disappearance of the major peak of the dye after decolorization experiment. The enzyme analyses revealed significant inductions and major roles played by laccase and lignin peroxidase in the asymmetric cleavage and reduction of the dye. The equilibrium experimental data were fitted to Langmuir, Freundlich and Temkin adsorption isotherms to obtain the characteristic parameters of each model. Temkin adsorption isotherm model represented the best fit of experimental data than the other models. The results of this research portends that the fungus is a good candidate for the mycotreatment of contaminated wastewater.

Keywords: Biodegradation; Eriochrome black T dye; yeast; *Peyronellaea prosopidis*; Isotherms

Patrick Onuamah
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**Development and Optimization of Mechanical Strength Model Of
Cement-Laterite-Sand Solid Sandcrete Blocks**

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Abstract

The investigation delves into the model development and optimization of the compressive strength of 67/33 laterite/sand solid sandcrete block. Laterite is a reddish layer often belying the top soil in many locations and often deeper in some areas. The study applies the Sheffe's optimization approach to obtain a mathematical model of the form $f(X_1, X_2, X_3, X_4)$, where X_{ij} are the proportions of the concrete components, viz: cement, laterite, sand and water. Scheffe's experimental design techniques are followed to mould various solid block samples measuring 450 mm x 225 mm x 150 mm and tested for 28 days strength. The task involved experimentation and design, applying the second order polynomial characterization process of the simplex lattice method. The experimental design model is $Y=2.06X_1 + 2.25X_2 + 2.13X_3 + 2.67X_4 - 0.77X_1X_2 - 0.71X_1X_3 - 2.70X_1X_4 + 1.58X_2X_3 - 1.97X_2X_4 - 1.61X_3X_4$. The model adequacy is checked using the control factors. Finally a software is prepared to handle the design optimization process to take the desired property of the mix, and generate the optimal mix ratios.

Keywords: Sandcrete, Pseudo-component, Simplex-Lattice, Optimization,

 <p>Mohd Imran ERCICSTR1804054</p>	<p>transformation matrix</p> <p>Genetic Diversity and Phylogenetic Relationship of Catfish Species Based on Sequence Variations in Cytochrome b Gene</p> <p>Mohd Imran Department of Zoology, Aligarh Muslim University, Aligarh, India</p> <p>Abstract</p> <p>Catfishes from the order Siluriformes form one of the commercially important groups of food fishes in India, endemic to freshwater. A total of five species from this order were investigated because of their sparsely available genetic resources, which include <i>Clarias batrachus</i>, <i>C. gariepinus</i>, <i>Heteropneustes fossilis</i>, <i>Mystus seenghala</i> and <i>Wallago attu</i>. These are among the commonly consumed fish species, especially in northern India. Their population is continuously declining which could probably bring them under threatened category in the near future. The phylogenetic relationship of these species is also not well documented. Hence the present study was undertaken to determine the genetic variability and the phylogenetic relationship of aforesaid species using mitochondrial cytochrome b gene (Cyt. b) as a marker. Partial segment of Cyt. b gene were analysed for intra-specific and inter-specific sequence variations. Intra-specific similarity was highest in both <i>M. seenghala</i> and <i>W. attu</i> i.e. 97.38% and 97.39%, respectively. Inter-specifically, highest sequence similarity was found between <i>C. gariepinus</i> & <i>W. attu</i> (83.05%) and the lowest was found between <i>H. fossilis</i> & <i>M. seenghala</i> (77.10%). Phylogenetically, <i>M. seenghala</i> and <i>W. attu</i> were placed within the same clade which is placed as a sister clade to <i>H. fossilis</i>. Whereas, the two species of genus <i>Clarias</i> formed a separate clade thus confirming their common ancestry. Conclusively, <i>M. seenghala</i> and <i>W. attu</i> with lowest intra-specific variability suggest a tendency of genome homogenization which makes them vulnerable to environmental stresses. The information on genetic divergence and phylogenetic relationship so obtained by analysing cyt. b gene sequence data will be helpful in further understanding the population dynamics of these species. The data suggest that urgent steps need to be taken to conserve these species by initiating specific conservation strategies and suitable breeding programs to enhance their genome heterogeneity which may make them hardy to withstand environmental vagaries.</p> <p>Keywords: Catfishes, cytochrome b, inter/intraspecific variations, phylogenetic relationship</p>
<p>Olaiya Folorunsho ERCICSTR1804055</p>	<p>Predicting Students Ailment Occurrence during Examination Period using Artificial Neural Network</p> <p>Olaiya Folorunsho Department of Computer Science, Federal University, Oye Ekiti, Nigeria</p> <p>ABSTRACT</p> <p>It is very common for students to fall ill during examination period after much academic stress and majority of them showed up at their respective institutions' health centres. Students as individuals, have different orientations as to whom to trust when it comes to their health and many prefer solutions outside school's provision, blaming the health institution for inconsistency, delay of service and dissatisfaction with services rendered. In order to profile solution to all these obvious complaints, there is a need to accurately predict future illness occurrences so as to enable the health centers adjust and enhance their services satisfactorily to</p>

	<p>encourage students' patronage. In this paper, we investigate the use of artificial neural network in predicting of students' ailment during examination. This was carried out using a multi-step Levenberg-Marquardt back-propagation algorithm (LMA) on different ailments from patients record collected between first semester 2011/2012 to 2016/2017 academic sessions from the Federal University Oye-Ekiti Health Centre. A data model for the patient dataset was developed and this was used to train the classifier algorithm and the result was compared with actual ailment cases of second semester 2016/2017. The algorithm worked well to suit the prediction outcome in comparison to the target input gotten from the most recent data recording with the 99.9% accuracy.</p> <p>Keyword: Prediction, Student, Occurrence, Levenberg-Marquardt, Artificial Neural Network</p>
 <p>Musa Ahmed Abubakar ERCICSTR1804056</p>	<p>Standardization and Antibacterial Activity of Persicaria Minor Huds against Enteric Bacterial Pathogens in Johor, Malaysia</p> <p>Musa Ahmed Abubakar Department of Science Laboratory Technology, Kano State Polytechnic, Kano, Nigeria</p> <p>Abstract</p> <p>A significant number of herbs have been utilized as dietary and phytomedicinal sources in enhancing our health. <i>Persicaria minor</i> (Huds.) Opiz known as Small water-pepper and well recognized locally in Malaysia as “daun kesum” is an edible vegetable with nutritional and medicinal benefits utilized generally by South-east Asians. The present study was conducted to evaluate the antibacterial activity of aqueous-ethanolic and aqueous extracts of <i>P. minor</i> leaves. The leaves of the plant undergone extraction based on Malaysian Standard Guidelines which is 30% aqueous-ethanol and absolute water as normally used in traditional medicine to produce the respective extract concentrates. The plant was identified and authenticated by taxonomist from Forest Research Institute of Malaysia (FRIM). Both extracts were standardized by evaluating the total protein and polysaccharide contents in which aqueous-ethanolic extract was found to possess high contents of proteins (1713.67 µg/mL) while contents of polysaccharides were high in absolute water extract (17.6 µg/mL). These measurements were used as a standard for different batch extract. The extracts were then tested against four standard strains of bacteria which are <i>Enterococcus faecalis</i> ATCC 29212, <i>Escherichia coli</i> ATCC 11229, <i>Staphylococcus aureus</i> ATCC 6538 and <i>Pseudomonas aeruginosa</i> ATCC 15442 at different concentrations using disc-diffusion test with penicillin being used as positive control and dimethylsulfoxide a carrier as negative control. Both extracts showed antibacterial activity with minimum inhibitory concentration (MIC) and minimum bactericidal concentration (MBC) values in the range of 50 to 100 mg/mL against <i>S. aureus</i>, <i>E. faecalis</i>, and <i>E. coli</i>, respectively with aqueous-ethanolic extract being more potent. However, none of the extracts were active against <i>P. aeruginosa</i>. Therefore, the results obtained in this research have shown the nutritional values and high potential of <i>P. minor</i> leaves to be used as natural antibacterial agent for the elimination of various bacterial diseases and infections.</p> <p>Keywords: <i>Persicaria minor</i>; Antibacterial activity, Crude extracts, Standardization.</p>
<p>Insik Jo ERCICSTR1804058</p>	<p>Extraction of Numerical Data from Ocular Visual Field Image and Building Glaucoma Prediction Model Based on Machine Learning</p>

	<p style="text-align: center;">Insik Jo Data Science, Dankook University, Republic of Korea</p> <p style="text-align: center;">Abstract</p> <p>Visual Field, as image data, is the spatial array of visual sensations available to observation in introspectionist psychological experiments. It contains data obtained from Ophthalmologic diagnostic equipment. Visual Field data is generally used to diagnose disease occurs symptoms in the optic nerve and retina, such as Glaucoma or macular degeneration etc. We should manually build the numerical dataset from the image data to develop a diagnostic model based on machine learning. In this paper, we introduce how to extract numerical data we need automatically from the images by using OCR(Optical character recognizer) technology. Furthermore, we increased the recognition rates in this study, adding a function which detects errors on recognized numbers and corrects them. Based on this accumulated dataset, we built a glaucoma diagnostic model.</p> <p>Keywords Visual Field, OCR, machine learning, deep learning, glaucoma</p>
 <p style="text-align: center;">Donghoon Kang ERCICSTR1804059</p>	<p style="text-align: center;">A Design of Technology Stack for R and Database Application on the Web</p> <p style="text-align: center;">Donghoon Kang Faculty of Data Science, Graduate, University of Dankook, Yongin, Korea</p> <p style="text-align: center;">Abstract</p> <p>We propose an efficient technology stack to develop a web application based on R language and database. As Big Data has become one of the main key words these days, there is increase in R language. People can use various packages for statistical analysis, machine learning, and data mining in R. However, R language has been developed for statisticians, so that people can be faced with a problem in developing application using R language. In this paper, we introduce a technology stack to overcome the problem. There are back-end and front-end in this technology stack; back-end coded in R language consists of API based on database, and AngularJS Framework is used for front-end. In addition to this, we will show you how to utilize this model, such as distributing of model, developing dashboard program and so on.</p> <p>Keywords Technology stack, R-based Web, Database, AngularJS framework</p>
<p style="text-align: center;">Fredrick Umaru ERCICSTR1804060</p>	<p style="text-align: center;">Evaluation of the Biocontrol Potential of M. Anisopliae and A. Flavus Formulated in Peanut Oil against Rhyparochromus Littoralis (Hemiptera: Rhyparochromidae)</p> <p style="text-align: center;">Fredrick Umaru Biological Sciences, Taraba State University, Jalingo, Nigeria</p> <p style="text-align: center;">Abstract</p> <p>Rhyparochromus littoralis, commonly called dirt-colored seed bug, is a tropical insect pest of oilseed crops. It causes severe damages to groundnut and sesame crops during harvest and storage by probing the pods with its rostrum to suck the oil from the kernels. The common method of its control is the application of chemical insecticides which are often considered toxic to non-target insect species. Following the quest for eco-friendly alternative approach to chemical insecticides, the present study evaluates the biocontrol potential of M. anisopliae and A. flavus</p>

against *R. littoralis* under laboratory conditions. Different conidial concentrations 1×10^4 , 1×10^5 , 1×10^6 , 1×10^7 , 1×10^8 conidia ml⁻¹ were used in a dose-response bioassay by dipping adult bugs for 10 s in each conidial concentration before transferring them into plastic containers containing moist filter paper. Mortality was scored after every 24 h for 10 days at 80 ± 10 RH. Mortality caused by *M. anisopliae* ranged from 78 % to 100 % 7 days after treatment while *A. flavus* caused mortality between 66 % to 100 % 9 days post-treatment. However, mortalities in the control treatments were less than 10 % respectively. The lethal concentration (LC50 and LC90) values for *M. anisopliae* were 2.14×10^6 and 4.15×10^8 conidia ml⁻¹ while that of *A. flavus* were 4.75×10^6 and 1.42×10^9 conidia ml⁻¹ respectively. The lethal time (LT50 and LT90) were 3.3 and 5.7 days for *M. anisopliae* while *A. flavus* had 3.8 and 6.6 days respectively. Comparing mortality values between the two isolates, *M. anisopliae* showed greater virulence than *A. flavus*. The finding of this study suggests that *M. anisopliae* and *A. flavus* can be promising biological control agents of *R. littoralis*. However, field trials of the test isolates on *R. littoralis* should form the core of further research.

Keywords: Entomopathogenic fungus; biological control; seed bug; *R. littoralis*; *M. anisopliae*; *A. flavus*



Aashish Bardekar
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**A Study of Theaurapatic effects of Indian Classical Raga Darbari
Kannada Structural Influence on Human Brain Waves Using EEG**

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ABSTRACT

The ancient Hindus had relied on music for its curative role. The chanting and toning involved in Veda mantras in praise of God have been used from time immemorial as a cure for several disharmonies in the individual as well as his environment. As per the ancient literature ,therapeutic effect of indian classical raga Darbari Kanada is said to be very effective in easing tension and anxiety, providing great relief from headache, migraine, grief, mental shock and also promotes good sleep. Although it is require to verify this raga correlation systematically. By survey, it has been seen that no schemes have demonstrated yet. The proposed research presented in this paper is aimed to discover the science behind phonetics of raga darbari kanada and its effects on nerve system. This research is one step to explore scientifically the ancient way of alternative medicine i.e. raga therapy, which is a need of the day since current advances in technology and rising workload on human being is accompanied by stress relating to mental disorders. This research focuses on to study the influence of Indian classical raaga darbari kanada notes structure on human body while person is listening and experiencing an emotion in it by capturing EEG signals. The brainwave signals database will be collected and analyze. This research work addresses these objectives and aims to present a strong case which will help medical practitioners like psychiatrist, to treat patient by injecting music stimulus.

Keywords: Indian classical raaga Darbari kanada, Neuroscience, Emotion, raga and emotions, EEG, Brainwave Signals.



Yashoda Somarathna
ERCICSTR1804062

Application of nano-scale zinc oxide and tetramethylthiuram disulphide as an effective preservative system for concentrated natural rubber latex

Yashoda Somarathna

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Abstract

Natural Rubber (NR) latex preserved with low ammonia as the primary preservative together with Tetramethylthiuram disulphide (TMTD) and Zinc Oxide (ZnO) as the secondary preservative widely known as LATZ is the most common preservative system used in the latex industry due to its low ammonia content with reduced cost and lesser hazards in the working environment. However, the LATZ preservation system has its inherent drawback as TMTD and ZnO, which are responsible for generation of carcinogenic nitrosamines during the product manufacturing and releasing Zn as a heavy metal to water sources adversely affecting the aquatic systems, respectively. Because of the growing human health and environment concerns, worldwide attention has been focused to find alternative less risk preservatives for NR latex. In this study, the current LATZ system was modified by replacing the conventional ZnO from nano-scale ZnO together with simultaneous reduction in the current dosage of TMTD in order to develop a greener preservative system. A series of mixtures of TMTD/ nano ZnO, containing equal proportions, with concentrations of 25%, 20%, 15%, 10% and 5% were used as the modified systems. The conventional 25% TMTD/ZnO dispersion was taken as the control. Both conventional and nano ZnO were first characterized using X-Ray powder diffraction (XRD) and scanning electron microscope (SEM). Raw latex properties including Dry Rubber Content (DRC), Total Solid Content (TSC), alkalinity, Volatile Fatty Acid number (VFA) and Mechanical Stability Time (MST) of centrifuged latex using above preservative systems were determined as per ISO standards. Tensile and tare strengths of vulcanized latex films, which are made according to a standard latex formula were also determined as per ISO standards. It was found that VFA numbers of all centrifuged latex preserved with modified systems after 55 days were below 0.020, whereas the control system exceeds this value after 35 days. This may be low due to increased anti-bacterial action of nano ZnO owing to its flake-like one dimensional (1-D) nano scale crystal morphology resulting very high surface area unlike the conventional ZnO. It was also revealed that MST values of NR latex preserved with modified systems are significantly increased with time, which may be due to reduction of ZnO thickening effect. Tensile and tare strengths of new systems are almost comparable with those of the control. According to overall results, nano- ZnO/TMTD could be used as an environmentally less risk and effective preservative system for NR latex especially for the applications where concentrated latex with high MST is required.

Keywords: natural rubber latex, preservation, nano ZnO, TMTD

Determining the persistent organo-chlorine residues in a fresh water cat fish by GLC and finding out their accumulation pattern.

Ajay Srivastava

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University, Dehradun, India**

ABSTRACT



Ajay Srivastava
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Residues of various pesticides in a commercial fresh water cat fish, *Heteropneustes fossilis* were measured. This study is relevant because of possible toxicological exposures to fish eaters by way of consuming exposed fish. Tissues extract obtained by Soxhlet apparatus were used for analysis and the concentrations of analytes were determined by gas chromatography with electron capture detection. The organochlorines found in the edible portion of fish (i.e. flesh) were mainly- endosulfan, delta-HCH, aldrine, pp-DDE etc. The concentration of these organochlorines were at or above the theoretical threshold limit and hence are supposed to be effectively toxic to fish eating human population.

Nikko Ardel Floretes
ERCICSTR1804064

A Decentralized Data Logger System for Water Related Disaster with Wireless Mesh Topology

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ABSTRACT

Climate change refers to the increase of earth's temperature. It gives catastrophic disasters such as floods, heavy rains, tsunamis, storm surge, and extreme heat. From that, it results to property destruction, loss of crops, landslides, melting of ice and many more. Most of the disasters stated are water-related, so this study developed a smart environment network that monitors rise of water level and water flow. The system utilized Zigbee protocol (802.15.4) for the transmission of signal from the Base Station to other nodes. Bluetooth technology was used for the access of the users to the network. A localized water level sensor was utilized with the help of an operational amplifier and together with water flow sensor. The system underwent evaluation tests such as functionality test and reliability test for three days. Analysis of the results showed that the system functions as expected. It indicates that the study was reliable on detecting water level and water flow reading especially on the transmission of data even if there were no electric power, no internet connection and no cellphone signal.

Keywords: Flood, Wireless Network, Flow Rate, Automated System, Android



Dr. G. Hemath kumar
ERCICSTR1804066

Effect of Chemical Treatment on Mechanical Characteristics of Chicken Keratin Fiber Reinforced Vinyl Ester Composites

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Abstract

In recent years, Around 12.1 million tons of poultry waste produced in India from poultry industries. These waste also produce high prospective volatile organic carbon, harmful carbon dioxide and leachates. These type of wastes can be converted into fibers as reinforcement material to the polymer based composites. In the present work mechanical properties of waste chicken feather fiber reinforced vinyl ester composites were studied. The microstructure observed by scanning electron microscope indicates the uniform distribution of fibers in vinyl ester matrix. Mechanical properties of pure resins and chicken keratin fiber composites were

	<p>compared and noticed that fiber reinforced composites have better mechanical properties under 10 wt. % of fiber loading than neat resin. From the statistical analysis, it is observed that there is a significant difference between the two chemical treatment processes for the extraction of chicken keratin fiber and mechanical properties are also improved significantly under 95% of confidence level. The conclusion attained from this investigation is to convert the agricultural wastes into useful products using biodegradable polymers. The fabricated composites can be applied in different industrial applications such as automobile, aircraft and building materials.</p> <p>Keywords: Alkaline Treatment; Chicken keratin fiber; Modulus; Morphological Properties; Strength; Vinyl ester polymer</p>
 <p>Arul Mozhi Selvan V ERCICSTR1804068</p>	<p>Optimization of Tensile Properties of Glass Fiber / Al-SiC Reinforced Polyester Hybrid Nanocomposites</p> <p>Arul Mozhi Selvan V Department of Mechanical Engineering National Institute of Technology, National Institute of Technology, Tiruchirappalli, Tamil Nadu, India</p> <p>Abstract</p> <p>The polymer composites reinforced with synthetic fibers such as glass, carbon, aramid fiber etc. are mainly used for the structural applications such as light industrial products, vehicles, wind energy, construction, automotive and aerospace due to its higher performance, good corrosion resistance and high specific strength. The glass fiber is strong, light weight and robust material used in many industries due to its excellent properties. The strength of fiber glass is lower than carbon fiber and material is less brittle and low cost. The weight and bulk strength are very favorable when compared to metals and it can be easily manufactured from wet layup and molding process using thermosetting polymers. There are various types of thermosetting polymers such as epoxy, vinyl ester and polyester which can exhibit high thermal, mechanical and corrosion resistance properties. In this present study, the response surface methodology was applied to optimize the effect of glass fiber and Al-SiC reinforcements on the tensile properties of glass fiber/ Al-SiC reinforced polymer hybrid nanocomposites. The central composite design was used to measure the optimum condition of the hybrid composite preparation to monitor the higher properties based on composite design. The selected optimum condition was 4 layers of glass fiber and 11.37 wt.% of Al-SiC nanoparticles, with the desirability of 95.3%. It was observed that fabricated hybrid composites were best fit by quadratic regression model with highest R2 value. The optimum condition was compared with the confirmation experiments which showed that there is a good agreement within them. After the optimization, it is also observed that the overall tensile properties of woven mat hybrid nanocomposites were improved by 1.12 times than chopped strand mat.</p> <p>Keywords: Central Composite Design; Fracture; Glass fiber; Polyester resin; Aluminum silicon carbide; Tensile strength</p>
<p>Jonathan Huang ERCICSTR1804070</p>	<p>Development and Validation of Predictive Models for Depression Using PHQ-9 Data</p> <p>Jonathan Huang Upper School, Episcopal Academy, Newtown Square, USA</p> <p>ABSTRACT</p> <p>Depression, the leading cause of suicide worldwide, is a serious,</p>

	<p>widespread, and growing mental health disorder that has now been labeled a global health epidemic. The Patient Health Questionnaire-9 (PHQ-9), a depression-screener questionnaire, has emerged as an effective diagnostic tool globally. Using U.S. PHQ-9 patient response data and corresponding demographic data from 2013-2014 and 2015-2016, this study conducts a comprehensive big data analysis of the response data to develop and validate predictive models for depression probability. Age at screening, gender, race/ethnicity, education level, and body weight were proposed as factors correlated with depression. Two models were constructed using RStudio to explore these correlations: a logistic regression model, and an artificial neural network. The logistic regression predictive model performed better than the artificial neural network in an unfamiliar dataset, whereas the opposite was true in a familiar dataset. Both models supported that the proposed factors are indeed significantly correlated with depression. The logistic regression model indicated that females and those with weight problems are more likely to have depression, and that the likelihood of depression increases with age, decreases with higher education levels, and varies by race. The artificial neural network indicated that age, the Asian race, some college education, and weight problems are the most significant factors affecting depression probability, in that order. Based on these results, populations most at-risk for depression are identified and appropriate measures should be taken to combat depression.</p> <p>KEYWORDS: depression, logistic regression, artificial neural network, PHQ-9, big data, correlogram, ROC</p>
<p>Prof.Dr. Balqees M. Aldabbagh ERCICSTR1804074</p>	<p>Preparation of Hydrophobic Nano Textile for Purification of Dust Water by electrospinning technique</p> <p>Prof. Dr. Balqees M. Aldabbagh App. Sci., Materials Branch, University of Technology, Iraq</p> <p>Dr. Hanaa J. Al shimary Materials Eng. coll. Poly. Dep, University of Babylon, Iraq</p> <p>Abstract: Poly styrene (PS) Nano filter prepare by electrospinning technique for cleaning the dust water from dumps and maintain the properties of the resulting water. 18% con. of (PS + dimethyl forma amide DMF) solution prepared for electrospinning pump on Aluminum surface for (10hr.), 4µm thickness filter resulted. Some test performed on this filter involve: morphology by using scanning electron microscopy (SEM) , thickness by digital micrometer, contact angle by contact angle shape drop analyzer . In addition that, some tests performed on the water sample after dumps separating from water by preparing nano filter, these tests involve: viscosity, surface tension, density, PH number, and weight of the sample, Results show the prepared filter have hydrophobic behavior and it has (108o) θ (contact angle), the prepared filter has nano structured with beads through its morphology.</p> <p>Keywords: nanofilter, purification water, electrospinning, hydrophobic</p>
<p>Devikiruba Balakrishnan ERCICSTR1804076</p>	<p>IoT based Soil Nutrient Identification and Water Moisture Level Detection System</p> <p>Devikiruba Balakrishnan Computer Science and Engineering, Sec Anna University, Karaikudi, India</p>

Abstract.

Agriculture is key factor for life process. Now a day, the entire key event as such agriculture, industries and hospital etc are carried out through the IoT as technology. To be deployed in the soil, the specific type of sensors is used, which measures the nutrient content in any type of soil. The farmers enable the IoT to contend with the enormous challenges they face. The main objective of the project is to utilize the soil resources in order to maintain the soil nutrient content there by enriches the growth of the plant. If more amount of fertilizer is used, it will affect the nature of the soil and affect the human health through their products. The soil that contains macronutrients as such Nitrogen (N), Potassium (K) and Phosphorous (P) are certain limit to grow. From the limit of the soil the N, P, K content will be fixed. As much as 6.2 to 7.3 is the range of pH content necessary for the plants.

In order to manage the farms, the irrigation system should be correctly monitored by using soil moisture techniques. There are certain classes of sensors used to measure moisture and another type of class that measures nutrient content of the soil. Knowing the exact soil moisture conditions on their fields, not only are farmers able to generally use less water to grow a crop, they are also able to increase yields and the quality of the crop by improved management of soil moisture during critical plant growth stages. This will be very helpful to the farmers who are away from the land, and improve the crop cultivation.

Keywords:

Arduino uno, PH level, humidity, NPK Content, Zig Bee



Henik Anjayati
ERCICSTR1804077

Characterization of E2 Protein From Human Papillomavirus (HPV)-16 BY USING Bioinformatics Approach To Predict Designed Drug

Henik Anjayati

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Abstract

Human Papillomavirus (HPV)-16 is one type of HPV with high-risk infection, the cause of cervical cancer for women. HPV-16 has dsDNA genetic material consisting of E1, E2, E4, E5, E6, E7, L1, and L2 genes. E2 gene is one of the important gene, because it can cause the replication, transcription, secretion, encapsulation, regulation of cellular gene expression, cell cycle and apoptotic regulation. When the E2 protein is translated from E2 gene, high copy number of DNA replication and other proteins expression will occur. E2 will allow the virus to "reproduce" and infect other host cells. Those E2's characteristics can be used to predict new drug design. To predict new drug design based on E2 HPV-16, we must understand about its molecular characteristics, such as its solubility, protein structure, amino acid composition, and pI. Before doing laboratory test, it is necessary to do bioinformatics study to find out the molecular E2 protein. E2 protein consists of α -helix and β -sheet secondary structure. For tertiary prediction structures, E2 protein has 2 structural models but only 1 structure has a 100% identity seq. E2 protein doesn't have a transmembrane helix but has hydrophilic region more than hydrophobic and has higher solubility than the comparator and has pI about 7.43. Bioinformatics approach will be used to design drugs that are compatible with the characteristics of HPV E2 protein. Thus, the E2 protein already expressed is unable to cause normal cells to transform into cancer cells.

Key word: HPV-16, E2 protein, bioinformatic approach



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YRSICSTR1804051

Climate Change and Snow Cover Dynamics in the Upper Indus Basin Hindukush Karakoram Himalaya

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Abstract

Snow is one of the key freshwater resources on Earth. Mountainous basins like the Upper Indus Basin are dependent on seasonal snowmelt and glacier melt. Monitoring of the snow-covered area is not only significant for the overall hydrology of the Indus basin but also important to the sustainable agriculture and hydro-power system. The snow cover in the upper Indus river basin of Gilgit Baltistan was investigated for changes over the last 18 years using the Moderate Resolution Imaging Spectroradiometer (MODIS) snow product. The study area was divided into five elevation zones ranging from 877–8564 m ASL. The results indicated that the snow cover extent has slightly increased basin-wide as well as zone-wise. However, the most significant increase in snow cover was in the middle elevation zones, which are situated between 3000 and 5000 m ASL. The increase in the extent of the snow-covered area was more significant during snowmelt period. On the other hand, a non-significant decreasing trend in the snow-covered area was observed during snow accumulation period. A shift in snowmelt and snow accumulation periods could be correlated with altitude. The snow cover was found to be more persistent at higher elevations. Each zone was further studied for snow cover variations during snowmelt and snow accumulation periods.
Keywords: Snow cover; MODIS; Snow covered area; Climate change; Upper Indus Basin; Glaciers



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ERCICSTR1804067

Influence of Chemical Surface Modification on Micro-Wear Characteristics of Sugarcane Nanocellulose Epoxy Nanocomposites

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Abstract

The waste sugarcane bagasse is the primary agricultural biomass of the sugarcane industry and its main constituents is cellulose. These bagasse is generally applied in production of electricity and heat in sugarcane mills and especially in India, these type of biomass has been utilized to generate ethanol. These waste sugarcane bagasse can also be applied as reinforcement material in polymer matrix composites. In this present work, the nanocellulose fibers extracted from sugarcane bagasse using salt solution and alkaline treatment process. Sugarcane nanocellulose fiber reinforced epoxy nanocomposites were manufactured by wet layup method. This investigation has been conducted to exhibit the utilization of plant cellulose fiber as the potential reinforcement of synthetic fibers in tribo-composites. The dry sliding wear characteristics under micro level of raw, salt solution and alkaline treated nanocellulose fibers reinforced epoxy nanocomposites were analyzed in this investigation. The experiments were designed and carried out as per central composite design (response surface methodology) to determine the influence of three variable factors such as sliding velocity (1.95, 4, 7, 10 and 12.05 m/s), sliding distance (3.29, 5, 7.5, 10 and 11.71 km) and load (1.27, 4, 8, 12 and 14.73 N) on the wear characteristics of epoxy nanocomposites. From the ANOVA (Analysis of variance), it is observed that all the three

	<p>independent parameters plays an important role in the wear characteristics of epoxy nanocomposites, as proven from scanning electron microscope. Simultaneously minimize these tribological characteristics, the desirable values of the parameters were depicted to be 5.94 m/s, 5 km and 5 N for sliding velocity, distance and load respectively. From the normal probability curves, it is signified that there is a good agreement within the RSM models and experimental results.</p> <p>Keywords: Coefficient of Friction; Epoxy Resin; Nanocellulose; Response Surface Methodology; Salt Solution Treatment; Wear</p>
<p>Aboelnour Abdalla ERCICSTR1804075</p>	<p>The Bleustein-Gulyaev Wave and the Electromechanical Coupling Factor in Piezoelectric Layered Structures under Effect of Coriolis and Centrifugal Forces</p> <p>Aboelnour Abdalla Department of Mathematics, Faculty of Science, Sohag University, Sohag, Egypt</p> <p>Abstract: Bleustein-Gulyaev waves under the rotation have a good deal of practical importance in different signal transmission, micro-machined gyroscopes, sensors, actuators, and signal processing and information storage applications. This work investigates the propagation of Bleustein-Gulyaev (B-G) wave in a piezoelectric layered half-space under the effect of Coriolis and Centrifugal forces. In addition, the expressions for the phase velocity equation of the Bleustein-Gulyaev wave are given under the effect of rotation. Furthermore, the boundary conditions are considered in such a manner the displacements, shear stress, electric potential, and electric displacements are continuous across the interface between the layer and the substrate together with the traction free boundary at the surface of the layer. Moreover, the phase velocity is numerically calculated and illustrated for the electric open and short cases for different thicknesses of the layer and wave number. It is found that the Bleustein-Gulyaev wave and electro-mechanical coupling factor are influenced by the rotation and the physical properties of the material. The numerical outcomes produced by employing as the material example are included for more clarification.</p> <p>Keywords: Bleustein-Gulyaev wave; Piezoelectric layered structure; Electro-mechanical coupling factor, Coriolis force and Centrifugal force.</p>
<p>Queen Gladys ERCICSTR1804080</p>	<p>Prevalence And Factors Associated With Hepatitis B Virus Infection Among Pregnant Women 15-49years In Bidibidi Refugee Settlement, Uganda</p> <p>Queen Gladys Mental Health, Public Health, Makerere University Graduate, Kampala, Uganda</p> <p>Abstract Introduction: Hepatitis B is a global public health burden caused by Hepatitis B virus but the local burden among pregnant refugee women is unknown. This study assessed the prevalence and factors associated with HBV infection among pregnant women 15-49years in BidiBidi refugee settlement, Uganda Methodology: A Cross-sectional study was conducted in sixteen health centers in BidiBidi refugee settlement among 200 pregnant women 15-49years. Quantitative methods of data collection with a structured questionnaire and qualitative methods were used to collect data.</p>

	<p>Systematic and purposive sampling techniques were used for selecting participants. 2mls of blood was drawn to test for HBs Ag and HBcAB-Total-IgG/IgM (HBV exposure) and HBeAg (HBV active replication) tests. Frequencies and proportions of variables were generated at univariate analysis. Logistic-regression was used to determine factors associated with HBV positivity. Odds ratios and 95% confidence intervals were used to measure associations. Data was entered in EPIDATA 3.01 and analyzed using STATA-14.1.</p> <p>RESULTS: There were 200 respondents, prevalence of Hepatitis B was found to be 15.5% (31/200). At bivariate level, several factors were found to be associated with Hepatitis B Virus infection, that is to say, marital status, occupation, dead body preparations, cultural practice, place of delivery, alcohol consumption, ever tested for syphilis. zones, occupation, ever tested for syphilis were significantly associated with the virus at Multivariate level.</p> <p>Conclusion: The prevalence of HBV infection among pregnant women in BidiBidi refugee settlement is high at 15.5% than the Uganda national prevalence of 4.1%.</p> <p>Key Words: Hepatitis B, pregnant women, prevalence, Uganda, refugees.</p>
<p>Leon A. Abdilah ERCICSTR1804081</p>	<p>Millennials Computer Science Students Video-Based Assignment</p> <p>Leon A. Abdilah Information Systems, Universitas Bina Darma, Palembang, Indonesia</p> <p>Abstract</p> <p>Current young college students were born with native knowledge in information technology field. They have inborn ability to sense and adopt the usefulness of information technology applications. Some of famous current information technology applications nowadays include social media (facebook), blog (wordpress), cloud repository (dropbox), video site (youtube), etc. This article discusses how lecturer involved multimedia-based presentation for those milleneal college students in information systems department. There are 147 sophomore students involved in the observation. Course subjects involved in this research are Supply Chain Management and System Analysis & Design. Both of those subjects consist of 16 (sixteen) weeks of meeting. Every student are asked to join a group and work in a specific theme. Each group must develop the multimedia presentation based on their choosen topic. The students develop their multimedia presentation by using free softwares and tools. At the end of the semester, every team musts present and reports their team project in the form of video presentation. Every student needs to present at least 4 (four) slides as part of group presentation, talk for at least 20 (twenty) seconds, use animation and sound. The results show that students' groups able to create multimedia-based presentation in the form of video by using various of softwares, formats, durations and sizes. Three most famous video software used by students are Windows Movie Maker, Sony Vegas, and Filmora. Video formats used by them are MP4 and WMV. The duration for their multimedia-based presentation is between 1 (one) minute and 15 seconds until 17 minutes and 14 seconds. The presentation size is between 8.2MB until 1.7GB. The groups that get an A score, are the groups that use: 1) Sony Vegas (MP4, WMV) in 6 (six) to 9 (nine) minutes, 2) Movie (MP4) in 7 (seven) minutes and 3) FreeMake (AVI) in 13 (thirteen) minutes.</p> <p>Keywords : Assignment; Computer Science; Computer Science Students; Millennials; Video-based.</p>
<p>R. Ratianingsih</p>	<p>THE SHORT TERM OSCILATION PHENOMENA OF The</p>

<p>ERCICSTR1804084</p>	<p align="center">Mathematical Model Of The Type 2 Diabetes Mellitus-Metabolic Syndrome Prognosis</p> <p align="center">R. Ratianingsih Mathematics Study Program of Sciences Faculty, Tadulako University, Indonesia</p> <p align="center">A.I. Jaya Mathematics Study Program of Sciences Faculty, Tadulako University, Indonesia</p> <p align="center">Abstract</p> <p>In the preview paper, it was discussed the importance of the social factor parameters as the existence of the critical point of the type 2 diabetes mellitus (D) prognosis mathematical model. The parameters are the transition rate of over weighted people being obese (β) and the successes of positive interaction between obese, over weighted and normal people that makes the obese people being over weighted and between normal and over weighted people that makes the over weighted people being normal (ω), the transition rate of normal people being over weighted(α), the transition rate of obese people being D or M (ρ), and the probability of normal weighted baby born by normal people (r). Not only ω and α, the stability of the critical point needs the requirements of the transition rate of the D people being metabolic syndrome (ϕ), the transition rate of the individual of metabolic syndrome (M) people being D (σ) and the transition rate of the D people being Chronic (δ). In this paper the prognosis is being treated by involve sulfonyl ureas for peoples who have type 1 D to help pancreas to make more insulin and to have lower blood glucose $[(u)_1]$, biguanide (metformin) for peoples who have type 2 D to decrease some amount of glucose made by liver (u_2) and symphastatin to reduce the blood cholesterol containing $[(u)_3]$. The existence and stability requirements of the treated model are determined from the Jacobian matrix of the prognosis treated model that represented by the characteristic polynomial. The result shows that the treated shifts of the highest accumulation of population distribution from obese to overweight. Beside the short term oscillation phenomena, the successes of the treatment could also be seen from the simulation.</p> <p>Keywords : Diabetes Mellitus-Metabolic Syndrome Prognosis, Routh Hurwitz criteria, Stability</p>
<p align="center">Seung Ho Choi ERCICSTR1804082</p>	<p align="center">Development Of A Smartphone Application For Speaker Verification</p> <p align="center">Hannah Lee Dept. of Electronic and IT Media Engineering, Seoul National University of Science and Technology, Seoul, Korea</p> <p align="center">Deokgyu Yun Dept. of Electronic Engineering, Seoul National University of Science and Technology, Seoul, Korea</p> <p align="center">Seung Ho Choi Dept. of Electronic and IT Media Engineering, Seoul National University of Science and Technology, Seoul, Korea</p> <p align="center">Abstract</p> <p>This paper presents an implementation of context-dependent speaker verification application on the Android platform smartphone. Mel-frequency cepstral coefficients (MFCCs) are used as the speech feature.</p>

	<p>For pattern matching, Gaussian mixture model (GMM) as well as dynamic time warping (DTW) are adopted. Experiments show that our application can be effectively used for speaker verification. Keywords : Smartphone Application, Speaker Verification, MFCC, DTW, GMM</p>
 <p>Kah Keng Wong ERCICSTR1804083</p>	<p>CCDC50-positive Lymphoid Cells Confer Better Survival in R-CHOP-treated Diffuse Large B-cell Lymphoma</p> <p>Kah Keng Wong Department of Immunology, School of Medical Sciences, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia.</p> <p>Abstract</p> <p>Background: It was previously observed that coiled-coil domain containing 50 (CCDC50) protein was frequently expressed in lymphoid cells (LCs). In this study, CCDC50+ LCs are hypothesized to be present in diffuse large B-cell lymphoma (DLBCL) associated with better prognosis.</p> <p>Methods: CCDC50 expression profile was examined by immunohistochemistry in a panel of R-CHOP-treated DLBCL cases (n=156) with anti-CCDC50 antibody (HPA001336; Sigma-Aldrich, St. Louis, USA).</p> <p>Results: In DLBCL cases, 73.1% (n=114/156) of the cases contained CCDC50+ LCs and these cases demonstrated significantly better overall survival (OS; p=0.0126) and progression-free survival (PFS; p=0.010). CCDC50+ LC cases were not associated with all clinico-demographic and laboratory parameters investigated [age, gender, lactate dehydrogenase levels, extranodal involvement, ECOG performance status, cancer stage, International Prognostic Index (IPI)] except being significantly associated with the GC B-cell-like DLBCL (GCB-DLBCL) subtype by Hans algorithm (p<0.001). In multivariate analysis, presence of CCDC50+ LCs was predictive of OS (p=0.036; HR:1.79; 95% CI:1.04-3.07) and PFS (p=0.042; HR:1.69; 95% CI:1.02-2.81) independent of IPI but dependent on GCB-DLBCL subtype (OS: p=0.094; PFS: p=0.075).</p> <p>Conclusion: CCDC50+ LCs may play roles in triggering the immune response against DLBCL cells.</p>
<p>Ahmad Mubin ERCICSTR1804085</p>	<p>Eco-Efficiency Measurement And Improvement For Agroindustrial Sustainability</p> <p>Ahmad Mubin Department of Industrial Engineering, Faculty of Engineering, University of Muhammadiyah Malang, Indonesia</p> <p>M. Firdaus Furqon Department of Industrial Engineering, Faculty of Engineering, University of Muhammadiyah Malang, Indonesia</p> <p>M. Muyaehdi Amin Arozi Department of Industrial Engineering, Faculty of Engineering, University of Muhammadiyah Malang, Indonesia</p> <p>Abstract</p> <p>Eco-efficiency has emerged as a practical concept that combines environmental and economic performance indicators to measure the sustainability performance of different product alternatives. This study aims to determine and to increase eco-efficiency of sugar agro industry by applying Data Envelopment Analysis Methods (DEA). Based on the result of analysis, it was obtained that the input and output variable were the</p>

only two aspects that affected the level of eco-efficiency of agro industry. Input variable includes; raw materials cost and operational cost. Whereas output variable covers the sale products, the sale of by products, and the product of the waste utilization. The level of eco-efficiency used ECODEA-1 software and model, it was obtained DMU was not eco-efficient, which is DMU 2 (period 2) and DMU 3 (period 3) with each of the value is 0,816665 and 0,847921. Based on the result of DMU value and the reasons that make it is not eco-efficient, revamp proposal that was provided, reduced the use electrical energy and increased production and maximized the utilization of waste, thereby it can increase income and profit of the corporate.
Keywords : Eco-efficiency, ECODEA-1, DEA, DMU, Agroindustry.

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